

Foreword



National
Oceanic and
Atmospheric
Administration



U.S.
DEPARTMENT
OF
COMMERCE

NOAA Fisheries Service Northeast Cooperative Research Partners Program

The National Marine Fisheries Service (NOAA Fisheries Service), Northeast Cooperative Research Partners Program (NCRPP) was initiated in 1999. The goals of this program are to enhance the data upon which fishery management decisions are made as well as to improve communication and collaboration among commercial fishery participants, scientists and fishery managers. NOAA Fisheries Service works in close collaboration with the New England Fishery Management Council's Research Steering Committee to set research priorities to meet management information needs.

Fishery management is, by nature, a multiple year endeavor which requires a time series of fishery dependent and independent information. Additionally, there are needs for immediate short-term biological, oceanographic, social, economic and habitat information to help resolve fishery management issues. Thus, the program established two avenues to pursue cooperative research through longer and short-term projects. First, short-term research projects are funded annually through competitive contracts. Second, three longer-term collaborative research projects were developed. These projects include: 1) a pilot study fleet (fishery dependent data); 2) a pilot industry based survey (fishery independent data); and 3) groundfish tagging (stock structure, movements and mixing, and biological data).

First, a number of short-term research projects have been developed to work primarily on commercial fishing gear modifications, improve selectivity of catch on directed species, reduce bycatch, and study habitat reactions to mobile and fixed fishing gear.

Second, two cooperative research fleets have been established to collect detailed fishery dependent and independent information from commercial fishing vessels. The original concept, developed by the Canadians, referred to these as "sentinel fleets". In the New England groundfish setting it is more appropriate to consider two industry research fleets. A pilot industry-based survey fleet (fishery independent) and a pilot commercial study fleet (fishery dependent) have been developed.

Additionally, extensive tagging programs are being conducted on a number of groundfish species to collect information on migrations and movements of fish, identify localized or subregional stocks, and collect biological and demographic information on these species.

For further information on the Cooperative Research Partners Programs please contact:

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Northeast Cooperative Research Partners Program

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www.nero.noaa.gov/StateFedOff/coopresearch/

A. EXECUTIVE SUMMARY

In October 2000, NOAA's National Marine Fisheries Service funded a partnership of the New Bedford area Trawler Survival Fund (TSF), the School for Marine Science and Technology (SMAST) of the University of Massachusetts Dartmouth, the Massachusetts Fisheries Recovery Commission (MFRC), and the Massachusetts Division of Marine Fisheries (MDMF) to undertake a high-resolution, industry-conducted survey of the regional ground fisheries. The fishing vessels involved in this project operate simultaneously as commercial fishing vessels and as research platforms. Crews on twenty TSF groundfish vessels, trained by SMAST staff, logged both fisheries and environmental data on standard log sheets that are compatible with NMFS logs. A water profile data acquisition system was employed that consists of (1) inexpensive temperature probes attached to each net and (2) a prototype water conductivity (salinity) / temperature / depth (CTD) profiling system.

Between December 2000 and October 2001, twenty different TSF trawlers spent 949 days at sea on 119 fishing/survey trips. During this period, they conducted 4,508 separate hauls for an average of 4.8 trawls per at-sea day (or 6.3 trawls per fishing day).

A total of 67 different fish species were caught and inventoried, with the five most important commercial species being codfish, monkfish, witch flounder, American plaice flounder, and haddock. Codfish, the usual target species, were caught on 2,731 trawls (84% of the hauls) for a total of 636×10^3 lb (224 lb/haul) and an average catch per unit effort (CPUE, related to fish abundance) of 1.63 lb/minute. The best times to fish for codfish are early spring and mid-summer. Monkfish were caught on 2,746 trawls (82%) for a total of 720×10^3 lb (221 lb/haul) and an average CPUE of 1.20 lb/minute. Monkfish were most often caught during late summer or spring. Witch flounder were caught on 1,871 trawls (53%) for a total of 188×10^3 lb (98 lb/haul) and an average CPUE of 0.49 lb/minute. The witch flounder fishery is relatively constant throughout the year. Plaice were caught on 1,780 trawls (50%) for a total of 223×10^3 lb (124 lb/haul) and an average CPUE of 0.63 lb/minute. Plaice were most often caught during the summer months. Haddock were caught on 1,566 trawls (45%) for a total of 330×10^3 lb (195 lb/haul) and an average CPUE of 1.42 lb/minute. Haddock were caught during mid-winter to spring and mid-summer.

In mid-July 2001, we began assimilating Trawl Survey bottom temperature data into our weekly RFAC/AFMIS model runs. In the first trial, the June 1-15 2001 bottom temperatures were used to initialize the bottom temperature field of the Gulf of Maine RFAC/AFMIS domain model calculation. These model nowcast and forecast temperature fields are directly involved in our fish migration modeling that is just getting underway. The fish models will be initialized by the Trawl Survey fish observations.

These temperature data, along with bottom depths and logged bottom types were used to assess fish environmental preferences. According to log entries of fish caught and CPUE data, most species preferred a temperature range of 5-7°C. Highest CPUEs were usually found in the 4-5°C range. The five species mentioned above were most often caught between depths of 150-190m (with a second significant range of 50-70m for codfish).